

Academic Year: (2019 / 2020)

Review date: 30-04-2019

Department assigned to the subject: Department of Mechanical Engineering

Coordinating teacher: DURAN HERAS, ALFONSO

Type: Compulsory ECTS Credits : 3.0

Year : 4 Semester : 2

STUDENTS ARE EXPECTED TO HAVE COMPLETED

Introduction to Engineering Management

COMPETENCES AND SKILLS THAT WILL BE ACQUIRED AND LEARNING RESULTS.

The main objective for this course is to learn and apply the essentials of industrial firms organization. Allow the student to develop the basic competences required to manage the production planning and control and logistic activities in industrial companies.

* Specific competences:

- ** Ability to apply industrial firms organization concepts
- ** Apply the supply chain concept as an integrated approach to the production and logistic activities.
- ** Redesign of industrial processes
- ** Know and apply basic concepts of production planning and control and logistics
- ** Design and operation of productive and logistic systems

* Generic competences:

- ** Ability to apply knowledge of mathematics, statistics, economics and other scientific fields to the analysis of business situations.
- ** Analysis of unstructured situations and decisions within the production planning and control and logistic activities in industrial companies.
- ** Understand and apply qualitative and quantitative tools and techniques applicable within Industrial Organization.
- ** Identify and apply key concepts in Supply Chain Management.

DESCRIPTION OF CONTENTS: PROGRAMME

1. Organization of industrial firms.
 - 1.1. Introduction to operations, production and the Supply Chain.
 - 1.2. Qualitative and quantitative tools and techniques applicable in the organization of industrial firms.
2. Demand forecasting, inventory management and warehousing.
 - 2.1. Demand management.
 - 2.2. Independent demand inventory management models. Lot sizes.
 - 2.3. Warehousing. Lifecycle: reception, warehousing, picking, expedition. Information Systems.
3. Logistics and manufacturing planning and control systems. MRP.
 - 3.1. Manufacturing Planning and Control Systems (MPCS).
 - 3.2. Materials Requirements Planning (MRP). Master Schedule. Needs breakdown and anticipation.
4. Alternative approaches for coordinating production.
 - 4.1. Push, pull, hybrid.
 - 4.2. JIT.
5. (Re-)Design of products and processes.
 - 5.1. Product (Re-)Design.
 - 5.2. Process (Re-)Design.
 - 5.3. Work organization in industrial environments.

LEARNING ACTIVITIES AND METHODOLOGY

Lectures, exercises, practical sessions, cases and assignments to be carried out by the students and discussed during the sessions, readings assigned by the instructor or identified by the students.

ASSESSMENT SYSTEM

Partial exams will be held, approximately in the tentative weeks indicated in the schedule. Optionally, complementary evaluation system. May apply sampling based grading.

Final evaluation will be based on a written final exam that will provide a global assessment of the knowledge, skills and competences acquired.

Minimum grade required in the final exam: 4

% end-of-term-examination:	60
% of continuous assessment (assignments, laboratory, practicals...):	40

BASIC BIBLIOGRAPHY

- F.R. Jacobs, R.B Chase Operations and Supply Chain Management, Mcgraw-Hill/Irwin, 13e (2010)
- Instructor provided material: Slides, exercises... URLs and other Internet resources provided by the instructor, Through Aula Global..

ADDITIONAL BIBLIOGRAPHY

- J. Heizer, B. Render Operations Management, Prentice Hall, 10e. (2011)
- R.G. Schroeder, S.M. Goldstein, M.J Rungtusanatham Operations management. Contemporary concepts and cases, Mc Graw-Hill, 5e (2010)